

The Second Metric Revolution May Be Underway

Seong Won Park
The Hawaii Research Center for
Futures Studies
USA

Three months before I entered the futures graduate option in the Department of Political Science of the University of Hawaii at Manoa in the Fall 2007, I had a chance to meet a Korean dentist who had studied mathematics and science by himself since 1992. His name was Dong Bong Yang. At that time, I was a journalist. Someone told me about Dr. Yang and what he had done. I became interested in his work, and arranged for an interview during which he told me what he had discovered. When I heard his theory, I realized it was either completely ridiculous or very powerful. Dr. Yang named it *Zero Zone theory (ZZ)*.

I published the interview in the monthly magazine that I worked for, called *Shindong-a*, in July 2007. Then all hell broke loose. Internet users who were interested in science began debating whether ZZ was right or not. Ninety-nine percent of them said it was quack nonsense. Some of them found my internet blog and left scornful messages for me: "You are such an idiot!" "You'd better quit your job as a journalist!" Some people even thought of me as a criminal, saying "Seong Won Park made trouble in Korea, and then fled to Hawaii!" (What?) However, I was delighted that the debate caught so many people's eyes. Journalists prefer their pieces provoke controversy to their being ignored!

After the debate became so heated, the Korean Physical Society tried to assess whether ZZ was worth considering or not. Frankly speaking, I expected the Society to decide that the theory was worthwhile and thus to set me free. But the Society publicly announced: "Zero Zone theory is scientifically worthless."¹

Shortly after the Korean Physical Society announced their conclusions about ZZ, the *European Physical Journal C* also announced that Yang's paper would be rejected if submitted for publication in the *European Physical Journal C*.² In fact, Yang did submit a paper on Zero Zone theory to the *European Physical Journal C* in 2006 and waited for the *Journal's* response for sixteen months.

I was deeply disappointed to hear those negative voices about the theory. I began to doubt the theory myself. "Hmm.... Am I wrong? Should I accept the fact that I am a loser," I mumbled to myself.

However, an article I was reading began to console me. Sohail Inayatullah (1990) wrote the following about "emerging issues": "As James Dator has argued, a good emerging issue must gain a dubious – 'this is impossible, it will never happen' – response from the reader or policy maker. If the

issue is immediately acceptable then probably it is only continuing the 'presentification' of the future" (p.119). These phrases sounded like good news for me. So I presented Zero Zone theory as an emerging issue during a class that Professor Dator taught in the fall semester 2007. I had just learned "Dator's Second Law of the Futures" which is that "any useful idea about the futures should appear to be ridiculous." Of course, Dator pointed out that not every "ridiculous" idea is useful – many are simply ridiculous – but almost all ideas that do turn out to be useful were initially rejected by the "experts" in the field. Rejection and ridicule of new ideas is part of the normal process of social change. I was consoled.

Two years after rejection by the *European Physical Journal C*, Yang's theory was published in the *CODATA Data Science Journal*, a vehicle of the Committee on Data for Science and Technology (CODATA) of the International Council for Science (ICSU). Zero Zone theory finally stepped forward into the light through this publication.³

On the basis of this, I argue that humans may be undergoing the second metric revolution driven by cutting edge scientists. One of these scientists, Dr. Yang, proposes that every unit of measurement can be expressed by pure numbers. For example, the number 1 stands for one photon, a grain of light. According to Zero Zone theory, one photon, the speed of light, Planck's constant – universe's lowest unit in energy we know – and one second are considered the same. That means one photon is equivalent to mass, speed, time and length (wavelength) and they all equal to '1'. Yang believes that these numbers explain our world more precisely than other units do.

In brief, Zero Zone theory assumes that an object is dependent on an observer. This is quite different from the traditional Newtonian perspective. Furthermore, Dr. Yang combines Newton's mechanics with quantum mechanics and proposes ZZ as a synthesis that enables humans to look differently at the world they experience. As physical reality is constructed by artifacts, so Zero-Zone's numbers will construct a new reality.

Certain events during the French revolution in the 18th Century serve as a good example of what I mean by "a new reality." The French achieved civic equality by abolishing slavery and by establishing specific Rights of Man, such as the right to vote for a government or national leaders. Through the French revolution, a new kind of citizenship came into being that has now spread all over the world.

However, the important point for ZZ is that at the same time the French believed that uniformity of measurements would also bring about equal citizenship. According to James Scott (1998), Social and Policy Professor at Yale, "As long as each estate operated within a separate legal sphere, as long as different categories of people were unequal in law, it followed that they might also have unequal rights with respect to measure" (p. 32). The French thus enacted the metric system in France and transformed "France into a national community where the same codified laws, measures, customs, and beliefs would everywhere prevail" (Scott, 1998, p.32). Equal measurement systems can bring equal citizenship. It is a wonderful idea.

Now, the question becomes why our contemporary society needs a new metric revolution. I argue that the first metric revolution created a new *physical* reality whereas a new metric system now should create a new *mental* reality. Before compar-

ing the differences between those two metric systems, the implication of the first metric system should be explained.

The French in the 18th Century first suggested three metric systems: meter (m) as a unit of length, kilogram (kg) as a unit of mass, and second (s) as a unit of time. It was based on a Newtonian perspective. In Newton's mechanics, an object will stay at rest or continue at a constant velocity unless acted upon by an external unbalancing force. Therefore, Newtonians think that an object exists independently without being influenced by the variables of time and space. That is why the unit of space (m) and the unit of time (s) exist independently. Newtonian perspectives came from the Greek philosopher Democritus who lived in B.C.E 460~370.

Democritus believed that all matter is made up of "various imperishable, indivisible elements which he called atoma" (in English *atom*) or indivisible units.⁴ Gunwoong Bang (2005), a scientist of the Korea Research Institute of Standards and Science, argued that in Democritus' cosmology, an object is separate from mind or consciousness and is not influenced by an observer's mind. Rene Descartes, who was influenced by Democritus, believed in the 17th Century that the universe consists of two worlds. One is physical and the other is mental. After Descartes, Newton argued that if one knows what force, mass, and velocity push an object, then one can predict how the object will move. Thanks to Newton, people believe that every event is the result of a prior and adequate cause, and so humans can predict the future if they know prior causes.

However, quantum mechanics shook the Newtonian perspective. For example, in the early 20th Century, a German physicist, Werner Heisenberg, suggested the uncertainty principle, which is expressed by the formula $(\Delta p \times \Delta x) \geq h/2$. In this formula, p is momentum, x is the localizability of position, and h is Planck's constant. It is meaningful only in microscopic reality, because the amount of $h/2$ ($=10^{-34} J \cdot s$) is infinitesimal. But the implication of this mathematical statement is huge. The notion that momentum is complementary to position is a key concept in quantum mechanics. Heisenberg believed that an object can be observed only as a probability. Quantum scientists argue that time and space are *complementary* and cannot be divided into independent variables. In the uncertainty principle, position (space) and momentum (time)⁵ cannot be differentiated. That means that an object cannot be fixed until an observer takes a look at the object. It is the opposite of the Newtonian perspective that prediction is possible (Bang, 2005).

I believe we should more carefully consider the new metric revolution that the Zero Zone theory addresses before we reject it out of hand. As Paul Feyerabend (1993) points out, "Revolutions have transformed not only the practices their initiators wanted to change but the very principles by means of which, intentionally or unintentionally, they carried out the change" (p.216). A new metric revolution can bring new practices and new principles.

The second metric revolution may be underway. Zero Zone theory is an example of how scientists might reform the metric system. The numbers that Dr. Yang discovered imply a new physical reality that an observer observes at a moment. If Dr. Yang is right, he has discovered new relationships that humans have never thought about before. If he is right, humans will begin to understand that everything truly is connect-

ed with everything. This finding could lead to a new understanding that humanity is not composed of individually-isolated beings, but are complementary-beings who have relationships with all other forms of life, including plants, animals, and all organisms. This is why I as a futurist consider Zero Zone theory to be potentially an important emerging issue.

Correspondence

Seong Won Park
The Hawaii Research Center for Futures Studies
2424 Maile Way
University of Hawaii Manoa
Honolulu, Hawaii, 96822, USA
E-mail: seongwon@hawaii.edu

Notes

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2. Ibid.
3. Dong Bong Yang, Gun Woong Bahang & Sang Zee Lee. (2009). "Expression of All SI Units by One Parameter with Acceptable Uncertainties." *The CODATA Data Science Journal* Vol. 8, pp. 94-104.
4. It is cited from new world encyclopedia, available at www.newworldencyclopedia.org/entry/Greek_philosophy.
5. The momentum equals mass times velocity; the velocity equals meter times time. So the time means time in the momentum.

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